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Case Report

Aplastic anemia in pregnancy: an unequivocal nightmare for the obstetricians

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ABSTRACT

Aplastic anemia is a rare blood disorder characterized by pancytopenia and hypocellular bone marrow. It is a serious, life-threatening condition that may manifest during pregnancy and imposes a great challenge on management. The major causes of morbidity and mortality are hemorrhage and sepsis. The present case report describes our experience with a pregnant patient with aplastic anemia who was managed with hematologist support, leading to a successful outcome. A 26-year-old primigravida with no significant previous medical history was diagnosed with aplastic anemia at 22 weeks of gestation. She was managed with multiple erythrocytes, platelet transfusion, eltrombopeg, prednisolone, and immunosuppressive therapy. At 34 weeks of gestation, she underwent an elective caesarean section under general anesthesia for a severe intrauterine growth-restricted fetus. The postpartum period was uneventful. Management of aplastic anemia in pregnancy remains controversial, with no clear guidelines as there are only a few case reports. Hence, it warrants a comprehensive multidisciplinary-team approach in order to devise an obstetric, hematological, anesthetic, and neonatal plan and anticipate complications during the peripartum period. And it is possible to have a successful outcome with recent advances in supportive care and blood transfusions. This case is discussed because of its rarity and highlights the challenges involved in its diagnosis, treatment, and follow-up.

Keywords: High-risk obstetrics, Aplastic anemia, Eltrombopeg, Maternal mortality

INTRODUCTION

Aplastic anemia is a hematologic condition occasionally presenting during pregnancy.[1] This disorder consists of pancytopenia as a result of hypocellular bone marrow in the absence of an abnormal infiltrate or bone-marrow fibrosis.[2,3] It can worsen or relapse during pregnancy. A causal relationship between pregnancy and aplastic anemia has not been conclusively established; however, women with aplastic anemia can become pregnant since there is no compromise in fertility.[4] Ninety percent of maternal mortalities are due to hemorrhage and sepsis, while most fetal complications are secondary to maternal anemia.[5] This condition was first described by Ehrlich in 1888 in a pregnant patient. Supportive care with blood products is the mainstay of treatment for aplastic anemia in pregnancy, as high doses of immunosuppressive drugs and bone marrow transplantation are contraindicated in pregnancy. As there are very few cases reported in the literature, management is extremely challenging. But with newer drugs and recent advances, there is an increased possibility of a successful outcome for aplastic anemia in pregnancy.

We herein report a case of a pregnant woman with aplastic anemia with a successful outcome managed with blood products and immunosuppressants.

CASE REPORT

A 26-year-old primi booked at our center at 4 weeks and 4 days of gestation. She had no previous significant medical history. Her routine blood investigations at 7 weeks revealed hemoglobin 9.2 g/dl and platelets 1,20,000/cm^2 and an increased serum thyroid stimulating hormone (TSH) of 5.10 mIU/l; hence, she was advised on an iron-

rich diet and started on tablet thyronorm 50 mcg. NT scan done at 12 weeks and 5 days was normal, double markers; screen negative for trisomies.

Repeat hemoglobin at 12 weeks was 8.4 g/dl. Iron parameters were normal, with a low level of vitamin B12 and a peripheral smear showing a macrocytic picture. With a probable diagnosis of macrocytic anemia, injection B12 was given. And started on iron and calcium supplements.

At 17 weeks of gestation, hemoglobin was 8.2 g/dl, white blood cells (WBCs) were 3600 cells/dl, and platelets were 37,000/cum. A peripheral smear showed a picture of pancytopenia. A hematologist's opinion was obtained. Other blood investigations, like hemoglobin (Hb) electrophoresis, ANA, and APLA profiles, were negative. A diagnosis of aplastic anemia was made, and a bone marrow biopsy was planned. At 20 weeks gestation, the anomaly scan was normal. A bone marrow biopsy was done at 22 weeks to confirm the diagnosis, which showed a hypocellular bone marrow. Patient was explained about the rare condition, complications, pros and cons of continuing pregnancy, and as a collective decision, pregnancy was continued.

Her pregnancy was managed with a multidisplinary approach. Hemoglobin and platelets were monitored every week, and hemoglobin was maintained above 9 g/dl and platelets above 20,000/cum. According to the hematologist's advice, the patient was started on tablet cyclosporine, tablet eltrombopeg, tablet prednisolone, tablet folic acid, and tablet udiliv in view of altered liver function test (LFT) values, which were drug-induced.

The patient had regular antenatal check-ups. At 25 weeks of gestation, serial growth and Doppler scans were done to monitor fetal growth. A growth scan done at 30 weeks showed a baby at the 25th growth percentile, MCA Doppler high resistance flow, and a CP ratio >1.

Antenatal steroids were given for fetal lung maturity at 30 weeks. The decision for elective delivery by caesarean was planned at 34 weeks + 2 days of gestation in view of IUGR with Doppler changes. The patient was transfused with 1 unit of PRBC prior to delivery.

An elective lower segment caesarean section was done at 34 weeks and 2 days under antibiotic coverage. An alive male baby weighing 1.640 kg was born with a good APGAR score. There was no post-partum hemorrhage. 2 units of single donor platelets were transfused immediately postoperatively as there was minimal oozing during surgery. Post-surgery hemoglobin was 9.9 g/dl and platelet count was 1,20,000/cum.

The intraoperative and postoperative periods were uneventful. On POD-2, hemoglobin was 8.7 g/dl, and platelets were 1,64,000/cum. The patient had 1 unit of blood transfusion. The patient was discharged on POD-4 in stable condition. 6 weeks postpartum, the patient was advised on contraception based on WHO MEC criteria. Histopathology of placenta showed distal villous hypoplasia. Further genetic testing showed heterozygous dyskeratosis congenitalia. And she has been under follow-up and has been doing well for the past 10 months.

Table 1: Investigations, blood transfusion done at each gestation age.

Date	Gestation age	Haemoglobin (gm/dl)	WBC	Platelet /cumm	Blood transfusion	Intervention
29 July 2023	12 weeks 5 days	8.4	-	1,20,000	-	Therapeutic dose of iron
29 August 2023	17 weeks 1 day	8.2	-	1,20,000	-	Iron parameters done-normal, PS-macrocytic normochromic with anisopoikilocytosis, erythropenia, WBC mild reduced, platelet mildly reduced
26 September 2023	21 weeks 1 day	7.4	2900	32,000	2 units PRBC	Ps-normocytic, normochromic, marcrocytic anaemia with leucopenia and thrombocytopenia
04 October 2023	22 weeks 2 days	9.7	3010	40,000	-	Bone marrow biopsy- hypocellular bone marrow
24 December 2023	25 weeks 1 day	8.2	4040	1,00,000	1-unit PRBC	
18 December 2023	33 weeks	8.4	4550	42,000	1-unit PRBC	
26 December 2023	34 weeks 1 day	10.4	5270	63000	1-unit PRBC and 1-unit platelets	

Continued.

Date	Gestation age	Haemoglobin (gm/dl)	WBC	Platelet /cumm	Blood transfusion	Intervention
27 December 2023	POD-0	9.9	4060	1,20,000	1-unit platelets (immediate post op)	
30 December 2023	POD-2	8.7	5370	1,64,000	1-unit PRBC	

DISCUSSION

The annual incidence of aplastic anemia is 2–6 per million people per year.[6] There is not much published research about aplastic anemia during pregnancy. The relationship between pregnancy and aplastic anemia is still unclear, and there are no definitive guidelines for the management of aplastic anemia in pregnancy. Hence, management still remains a challenge and nightmare for obstetricians.

Causes of aplastic anemia include drugs and other chemicals, infections, irradiation, leukemia, immunological disorders, and inherited conditions such as Fanconi's anemia, Diamond-Blackfan syndrome, and dyskeratosis congenital.[7]

The maternal complications of aplastic anemia in pregnancy are abortion, preeclampsia, preterm birth and stillbirth, and the worst, hemorrhage and infection. Fetal complications include growth restriction and even intrauterine death. Fortunately, our patient didn't develop any maternal complications; we did not encounter hemorrhage either during the caesarean or in the postpartum period. But the fetus had severe IUGR at 34 weeks.

Earlier in 1989, a few studies proposed the termination of pregnancy in the first trimester for patients with aplastic anemia. But now, with supportive measures, newer drugs, recent advances, and the improved availability of better transfusion services, there is an increase in the chance of a successful outcome in pregnancies. And hence, pregnancies should be maintained as long as the health of the mother is not seriously affected.[7]

The benefit of transfusions to prevent bleeding should be weighed against the likelihood of developing HLA antibodies and hemochromatosis in the mother. Other treatment modalities include treatment with immunosuppressants, steroids, and bone marrow transplantation. Maintaining an adequate hemoglobin level of more than 8 g/dl and a platelet count greater than 20,000/cu mm is necessary. Prophylactic measures, like prophylactic platelet transfusion analgesics and antibiotic coverage, should be ensured during delivery. Assisted second stage of labor in cases of vaginal delivery and avoiding perineal infection in the postpartum period will result in a good prognosis.[8]

CONCLUSION

Aplastic anemia is a serious, life-threatening condition that may manifest during pregnancy. As there are very few case reports, there is no definitive therapy or protocol for the management of aplastic anemia in pregnancy. Each case should be individualized based on maternal factors, condition, availability of a supportive team, and facilities. But it is possible to have a successful outcome with recent advances in supportive care and blood transfusion facilities. A multidisciplinary team approach to the management of aplastic anemia in pregnancy involving the obstetrician, the hematologist, the anaesthetist, and the neonatologist is necessary to coordinate antenatal care, optimize maternal outcomes, and plan peripartum interventions.

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REFERENCES

1. Kaufman DW, Kelly JP, Issaragrisil S, Laporte JR, Anderson T, Levy M, et al. Relative incidence of agranulocytosis and aplastic anemia. Am J Hematol. 2006;81(1):65-7.
2. Camitta BM, Storb R, Thomas ED. Aplastic anemia (first of two parts): pathogenesis, diagnosis, treatment, and prognosis. N Engl J Med. 1982;306(11):645-52.
3. Killick SB, Bown N, Cavenagh J, Dokal I, Foukaneli T, Hill A, et al; British Society for Standards in Haematology. Guidelines for the diagnosis and management of adult aplastic anaemia. Br J Haematol. 2016;172(2):187-207.
4. Deka D, Malhotra N, Sinha A, Banerjee N, Kashyap R, Roy KK. Pregnancy associated aplastic anemia: maternal and fetal outcome. J Obstet Gynaecol Res. 2003;29(2):67-72.
5. Ohba T, Yoshimura T, Araki M, Miyoshi J, Yonemura Y, Matsuura K, et al. Aplastic anemia in pregnancy: treatment with cyclosporine and granulocyte-colony stimulating factor. Acta Obstet Gynecol Scand. 1999;78(5):458-61.
6. Young NS. Acquired aplastic anemia. Ann Intern Med. 2002;136(7):534-46.
7. Kwon JY, Lee Y, Shin JC, Lee JW, Rha JG, Kim SP. Supportive management of pregnancy-associated aplastic anemia. Int J Gynaecol Obstet. 2006;95(2):115-20.

8. Geetha, Shankar KMK, Mercy KS. Successful outcome of pregnancy with aplastic anaemia: A case report. Indian J Obstet Gynecol Res. 2022;9(1):114-7.

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